2019

3D Engineering in the Elementary Schools

Dorian Cook

Lesia Lennex

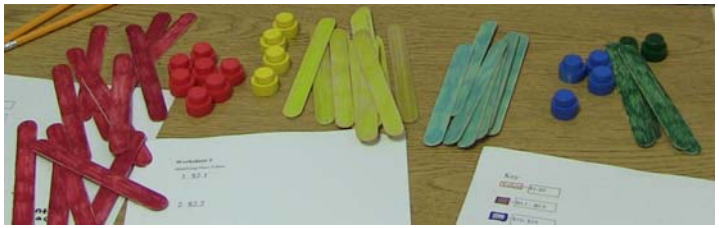
3D Engineering in the Elementary Schools

Dorian Cook, Undergraduate Research Fellow

Dr. Lesia Lennex, Department of Middle Grades and Secondary Education

Overview

Math Manipulatives are utilized in classrooms throughout the world. They are heavily used particularly in the elementary school classroom. They are a great visual tool that helps children's skills develop. Oftentimes they are fun and bright colored which helps engage the students in the lesson. I designed a math manipulative to help teach students a variety of lessons based in money.



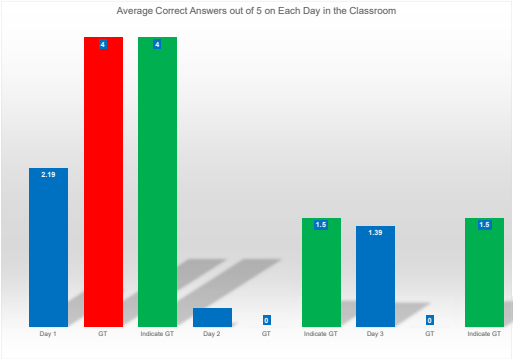
Methodology

Based on my extensive research, I designed a math manipulative that would work great for students. I chose various colors for the manipulatives that would engage students. The math manipulatives were introduced into kindergarten and first grade classrooms. Students were presented with three different five to seven minute lessons. These lessons were all based on money, including adding and subtracting money, identifying place values, and exchanging currencies between countries. We introduced the math manipulatives to the students and observed the ways they utilized them to answer various questions.

For more discussion of activities

Results

Students were taught three different lessons using the math manipulatives. All lessons were based on money: adding and subtracting money, place values, and exchanging currencies. We observed and recorded how students utilized the math manipulatives to answer various questions about the lessons.



From the five presented problems, we recorded those correctly answered. We analyzed their work, our videos, and our observations to understand how the students used the math manipulatives to solve the problems. There were 16 students on day one, 18 on day two, and 20 on day three. Two students were identified as gifted and talented. Two other students showed indications of being gifted and talented, but they had not yet been identified as so.

Further Reading

Dzulkifli, Mariam, and Muhammad Mustafar. "The Influence of Colour on Memory Performance: A Review." US National Library of Medicine National Institutes of Health Search Database, Penerbit Universiti Sains Malaysia, 20 Mar. 2013

Furner, Joseph M. and Worrell, Nancy L. (2017) "The Importance of Using Manipulatives in Teaching Math Today," Transformations:
Vol. 3 : Iss. 1 , Article 2.

Sowell, Evelyn J. "Effects of Manipulative Materials in Mathematics Instruction." Journal for Research in Mathematics Education, vol. 20, no. 5, 1989, pp. 498–505. JSTOR, www.jstor.org/stable/749423.